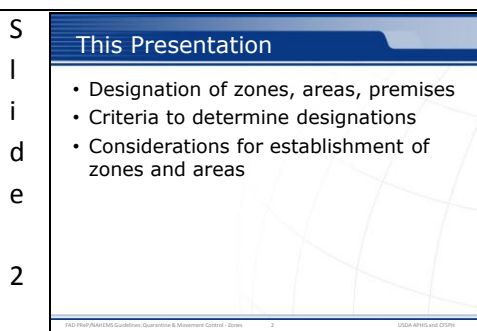
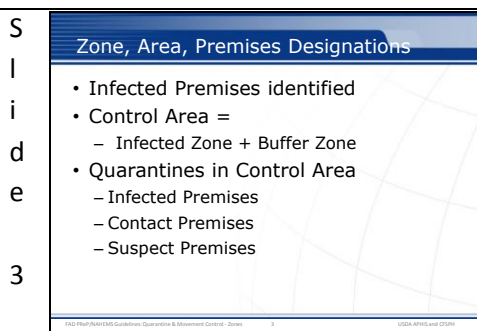


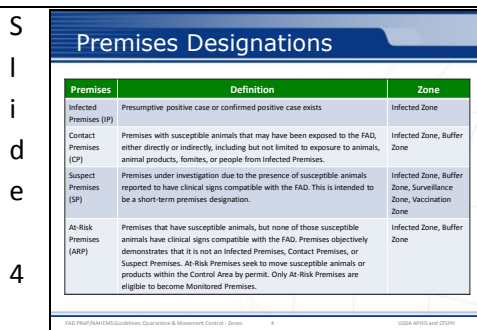
In a foreign animal disease (FAD) incident, control and containment of the disease agent is essential to eradication and recovery. Quarantine and movement control (QMC) are critical activities to protect animal health, by helping to prevent the disease agent from being transmitted to non-infected livestock and poultry populations. QMC stops and controls movements in a regulatory Control Area. This presentation focuses on diseases spread by direct and indirect contact rather than vector-borne diseases, as QMC is not particularly effective at preventing the movement of mobile insect vectors. However, QMC activities can still prevent the movement of infected hosts, which may be important in vector-borne FAD incidents. In an incident, quarantines and movement controls are handled through Incident Command, following local, State, and Federal laws/regulations. *[This information was derived from the Foreign Animal Disease Preparedness and Response (FAD PRoP)/National Animal Health Emergency Management System (NAHEMS) Guidelines: Quarantine and Movement Control (2014)].*



This presentation will explain the designations of zones, areas and premises that may be established in an FAD response to help contain and eradicate the disease. Geographic locations will be classified or designated according to specific criteria related to disease or disease-free status. These designations help to associate specific response activities with specific locations. Criteria that help to determine the designations will be presented. Considerations related to the establishment of zones and areas, particularly minimum sizes, will be discussed. This discussion of QMC will focus on the Control Area. For a full discussion of zones, areas and premises, see the print version of *Foreign Animal Disease Preparedness and Response (FAD PRoP)/National Animal Health Emergency Management System (NAHEMS) Guidelines: Quarantine and Movement Control*, and the APHIS *Foreign Animal Disease Framework: Response Strategies (FAD PRoP Manual 2-0)*.



Immediately after an FAD detection, the location of the infected animal or animals will be quarantined and designated as an Infected Premises. A regulatory Control Area will be established surrounding the Infected Premises. The Control Area is comprised of two zones, an Infected Zone plus a Buffer Zone. In addition to quarantines implemented for any Infected Premises, quarantines may also be implemented on Contact Premises and Suspect Premises. A Contact Premises is defined as a premises with susceptible animals that may have been exposed to the FAD, either directly or indirectly, including but not limited to exposure to animals, animal products, fomites, or people from Infected Premises. A Suspect Premises is a premises under investigation due to the presence of susceptible animals reported to have clinical signs compatible with the FAD. Other premises in the Control Area that are not considered exposed or infected have designations based on specific criteria, as shown in the next slide.



The chart on this slide shows a summary of premises designations that would be employed in an FAD response. In addition to Infected Premises, Contact Premises, and Suspect Premises mentioned in the prior slide and related to our discussion of quarantine, this chart defines At-Risk Premises. To paraphrase, an At-Risk Premises has susceptible animals, but none of those susceptible animals have clinical signs compatible with the FAD. An At-Risk Premises has objectively demonstrated that it is not an Infected Premises, Contact Premises, or Suspect Premises. An At-Risk Premises seeks to move susceptible animals or products within the Control Area by permit. Only At-Risk Premises are eligible to become Monitored Premises. *[Summary of Premises Designations. Content provided by: USDA]*

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Premises Designations cont'd		
Premises	Definition	Zone
Monitored Premises (MP)	Premises objectively demonstrates that it is not an Infected Premises, Contact Premises, or Suspect Premises. Only At-Risk Premises are eligible to become Monitored Premises. Monitored Premises meet a set of defined criteria in seeking to move susceptible animals or products out of the Control Area by permit.	Infected Zone, Buffer Zone
Free Premises (FP)	Premises outside of a Control Area and not a Contact or Suspect Premises.	Surveillance Zone, Free Area
Vaccinated Premises (VP)	Premises where emergency vaccination has been performed. This may be a secondary premises designation.	Containment Vaccination Zone, Protection Vaccination Zone

FAD PRoP/NAHEMS Guidelines: Quarantine & Movement Control – Zones, Areas, & Premises

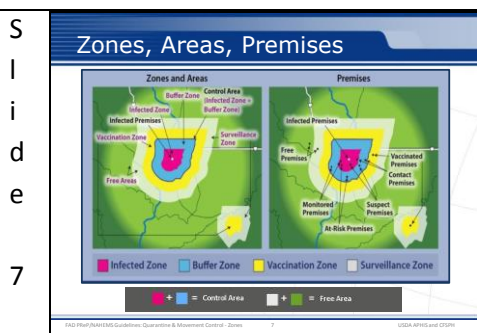
The continuation of the chart on the previous slide shows a summary of more premises designations that would be employed in an FAD response. This chart defines Monitored Premises, Free Premises, and Vaccinated Premises. A Monitored Premises has objectively demonstrated that it is not an Infected Premises, Contact Premises, or Suspect Premises. A Monitored Premises within the Control Area must meet a set of defined criteria in seeking to move susceptible animals or products out of the Control Area by permit. These premises also correspond to zone designations, as seen on the right of this slide and further discussed on the next slide. *[Summary of Premises Designations. Content provided by: USDA]*

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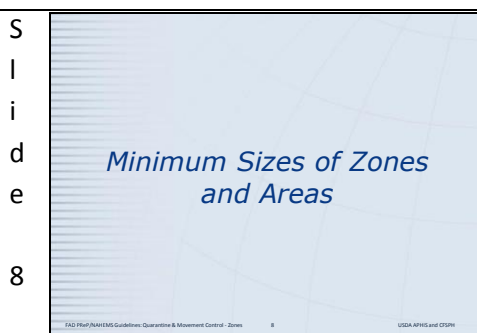
Zone/Area	Definition
Infected Zone (IZ)	Zone that immediately surrounds an Infected Premises.
Buffer Zone (BZ)	Zone that immediately surrounds an Infected Zone or a Contact Premises.
Control Area (CA)	Consists of an Infected Zone and a Buffer Zone.
Surveillance Zone (SZ)	Zone outside and along the border of a Control Area.
Free Area (FA)	Area not included in any Control Area.
Vaccination Zone (VZ)	Emergency Vaccination Zone classified as either a Containment Vaccination Zone (typically inside a Control Area) or a Protection Vaccination Zone (typically outside a Control Area). This may be a secondary zone designation.

FAD PRoP/NAHEMS Guidelines: Quarantine & Movement Control – Zones, Areas, & Premises

The chart on this slide defines the zones and areas. Please note that specific zones make up specific areas. The Control Area will be the focus for the QMC activities. As a review, the Infected Zone and the Buffer Zone, together make up the Control Area. Infected Premises, Contact Premises, and Suspect Premises in the Control Area will be quarantined due to movements creating a potential risk of transmitting disease. Within the Control Area, the At-Risk and Monitored Premises, which are locations with no evidence of infection, seek to move susceptible animals or products out of the Control Area by permit. Monitored Premises must meet a set of defined criteria in seeking to move. Although this presentation focuses on the movements associated with the Control Area, also take note of the definitions of the Surveillance Zone, the Free Area, and the Vaccination Zone. The Free Area is made up of the Surveillance Zone and any area outside the Control Area. *[Summary of Zone and Area Designations. Content provided by: USDA]*



These figures show examples of zones and areas on the left, and examples of the locations and types of premises that have been designated with specific classifications on the right. QMC activities will focus on the Control Area, illustrated as the dark pink Infected Zone in the center of the figures, plus the blue encircling Buffer Zone. Related to other on-going FAD response activities, note the location of other designated premises in the Vaccination Zone, the Surveillance Zone, and the Free Area. These figures are examples to illustrate the concepts of designated zones, areas, and premises, and are not to scale. The Vaccination Zone shown at the lower right can be either a Protection Vaccination Zone or Containment Vaccination Zone. More detail on designations of zones, areas, and premises, and the factors considered in determining their size is explained in the *FAD PRoP/NAHEMS Guidelines: Quarantine and Movement Control* document, and in the *APHIS FAD Framework: Response Strategies (Manual 2-0)* *[Example Zones, Areas, and Premises. Diagrams provided by: USDA; Graphic illustration by: Dani Ausen, Iowa State University]*



The size of zones and areas are established depending upon the FAD agent and circumstances of the outbreak, and may be modified or redefined as needed as circumstances change. For example, initially a Control Area may be much larger, such as multiple counties, a State, a Tribal Nation, or multiple States. The boundaries can be modified or redefined when tracing and other epidemiological information becomes available. The size of the zones and areas is scalable to the risk, or the uncertainty of the risk, posed by the disease agent and the circumstances of the outbreak. The circumstances for each FAD outbreak will be different, but guidance is provided for minimum sizes.

Minimum Sizes of Zones, Areas	
Zone or Area	Minimum Size and Details
Infected Zone (IZ)	Perimeter should be at least 3 km (~1.86 miles) beyond perimeters of presumptive or confirmed Infected Premises. Will depend on disease agent and epidemiological circumstances. This zone may be redefined as the outbreak continues.
Buffer Zone (BZ)	Perimeter should be at least 7 km (~4.35 miles) beyond the perimeter of the Infected Zone. Width is generally not less than the minimum radius of the associated Infected Zone, but may be much larger. This zone may be redefined as the outbreak continues.
Control Area (CA)	Perimeter should be at least 10 km (~6.2 miles) beyond the perimeter of the closest Infected Premises. Please see Table 5 for factors that influence the size of the Control Area. This area may be redefined as the outbreak continues.
Surveillance Zone (SZ)	Width should be at least 10 km (~6.2 miles), but may be much larger.

This chart provides information on minimum zone and area sizes for most FADs. Although the minimum size of the Infected Zone places the perimeter at least 3 km (approximately 1.86 miles) beyond perimeters of presumptive or confirmed Infected Premises, the size will depend on the disease agent and the epidemiological circumstances. The minimum size of the Control Area places the perimeter at least 10 km (approximately 6.21 miles) beyond the perimeter of the closest Infected Premises, however, it may be much larger. This table also provides a minimum width for the Surveillance Zone, where surveillance activities will focus on premises determined to be at the highest risk of infection. Zones and areas may be redefined as the outbreak continues, and may change shape as more positive cases are detected, or as the disease is eradicated, and quarantines are released. The sizes are consistent with international guidance. *[Minimum Sizes of Zones and Areas. Content provided by: USDA]*

Zone, Area Sizes for Mosquito, Culicoides-Borne Diseases	
Zone or Area	Minimum Size and Details
Infected Zone (IZ)	Perimeter should be at least 10 km (~6.2 miles) beyond perimeters of presumptive or confirmed Infected Premises. Will depend on disease agent and epidemiological circumstances. This zone may be redefined as the outbreak continues.
Buffer Zone (BZ)	Perimeter should be at least 20 km (~12.4 miles) beyond the perimeter of the Infected Zone. Width is generally not less than the minimum radius of the associated Infected Zone, but may be much larger. This zone may be redefined as the outbreak continues.
Control Area (CA)	Perimeter should be at least 30 km (~18.6 miles) beyond the perimeter of the closest Infected Premises. Please see Table 5 for factors to consider in determining the size of a Control Area. This area may be redefined as the outbreak continues.
Surveillance Zone (SZ)	Width should be at least 20 km (~12.4 miles) but may be larger depending on the known geographic range of vector.

QMC of animals is not particularly effective at preventing the movement of mobile insect vectors, however, these QMC activities can still prevent the movement of infected hosts, which may be important in vector-borne FAD incidents. For vector-borne diseases, particularly livestock diseases transmitted by mosquitoes and culicoides, minimum sizes of zones and areas are larger than those for FADs spread by direct or indirect contact. As an example, the minimum size for an Infected Zone in a mosquito- or culicoides-borne disease, places the perimeter at least 10 km (approximately 6.2 miles) beyond the perimeters of presumptive or confirmed Infected Premises. This is more than 3 times the perimeter distance as shown in the previous slide for FADs with direct or indirect transmission. *[Minimum Sizes of Zones and Areas for Mosquito or Culicoides-Borne Diseases. Content provided by: USDA]*

Considerations in Establishing a Control Area	

Many factors need to be considered when establishing the size of zones or areas to control disease, aside from just the minimum distances. Some of these factors involve the pathogenic agent and its behavior, the geographic location and animal species and density, as well as jurisdictional boundaries. A primary consideration is the potential consequences of not containing the disease agent to a particular jurisdictional or geographical area; and potential consequences of movement restrictions (or implementation of a permit process) on a large geographic or jurisdictional area.

Establishing a Control Area	
Factors	Additional Details
Jurisdictional areas	<ul style="list-style-type: none"> Effectiveness and efficiency of administration Multi-jurisdictional considerations: local, State, Tribal, and multistate
Physical boundaries	<ul style="list-style-type: none"> Areas defined by geography Areas defined by distance between premises
FAD epidemiology	<ul style="list-style-type: none"> Reproductive rate Incubation period Ease of transmission Infectious dose Species susceptibility Modes of transmission (such as, fecal-oral, droplet, aerosol, vectors) Survivability in the environment Ease of diagnosis (for example, no pathognomonic signs; requires diagnostic laboratory testing) Age of lesions
Infected Premises characteristics	<ul style="list-style-type: none"> Number of contacts Transmission pathways and transmission risk <ul style="list-style-type: none"> Extent of animal movement Number of animals Species of animals Age of animals Movement of traffic and personnel to and from premises (fomite spread) Biosecurity measures in place at time of outbreak

Because there are so many factors to consider in establishing a Control Area, the list spans this slide and the next. The type of category consideration is on the left, and the additional details are presented to the right. There may be additional factors not listed here that may pertain to the individual circumstance. FADs are considered transboundary diseases that do not stop at fence lines or State lines, or even international borders, and are often spread through the transportation and movement of animals and animal products. This slide lists considerations related to jurisdictional areas, physical boundaries, FAD epidemiology, and Infected Premises characteristics. *[Factors Used to Determine Control Area Size. Content provided by: USDA]*

Establishing a Control Area cont'd

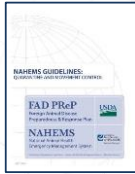
Factor	Additional Details
Contact Premises characteristics	<ul style="list-style-type: none"> • Number and types of premises • Susceptible animal populations and population density • Animal movements • Movement of traffic, fomites and personnel to and from premises (fomite spread) • Biosecurity measure in place prior to outbreak
Environment	<ul style="list-style-type: none"> • Types of premises in area or region • Land use in area or region • Susceptible wildlife and population density • Wildlife as biological or mechanical vectors
Climate (for aerosol spread diseases)	<ul style="list-style-type: none"> • Prevailing winds • Humidity
General area, region, or agricultural sector biosecurity	<ul style="list-style-type: none"> • Biosecurity practices in place prior to outbreak • Biosecurity practices implemented once outbreak detected
Number of backyard or transitional premises	<ul style="list-style-type: none"> • Types of premises, animal movements, and network of animal and fomite movements
Continuity of business	<ul style="list-style-type: none"> • COB plans and processes in place or activated at beginning of outbreak (such as surveillance, negative diagnostic tests, premises biosecurity, and risk assessments) • Permit processes, memorandums of understanding, and information management systems in place or activated at beginning of outbreak

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This slide presents additional factors in establishing a Control Area. Evident by this list, factors related to animals, environment and climate, in addition to management and biosecurity practices are important considerations. The continuity of business (COB) plans and processes that can be implemented will greatly influence the controlled movement activities to minimize disruptions and help stabilize agricultural industries. *[Factors Used to Determine Control Area Size, continued. Content provided by: USDA]*

For More Information

- FAD PReP/NAHEMS Guidelines: Quarantine and Movement Control
– <http://www.aphis.usda.gov/fadprep>
- Quarantine and Movement Control web-based training module
– Coming soon



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More details can be obtained from the sources listed on the slide, available on the USDA website (<http://www.aphis.usda.gov/fadprep>). The Quarantine and Movement Control web-based training module is in development and coming soon.

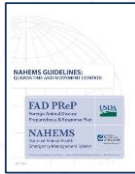
Guidelines Content

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FAD PReP/NAHEMS Guidelines: Quarantine & Movement Control 15 USDA APHIS and CFSHP

The print version of the Guidelines document is an excellent source for more detailed information. This slide acknowledges the Guidelines' authors and reviewers. It can be accessed at <http://www.aphis.usda.gov/fadprep>.

Acknowledgments

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